



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

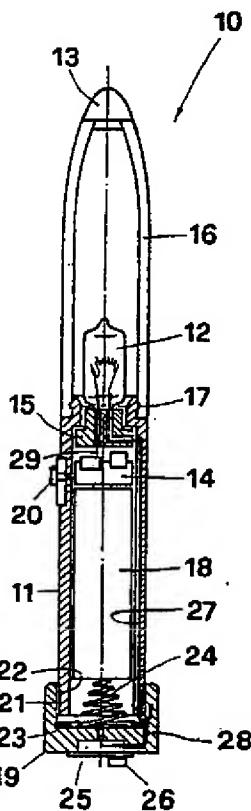
(51) International Patent Classification 5 : A61N 5/06, A61L 2/10, 2/08		A1	(11) International Publication Number: WO 93/12836 (43) International Publication Date: 8 July 1993 (08.07.93)
--	--	----	---

(21) International Application Number: PCT/IT92/00169 (22) International Filing Date: 23 December 1992 (23.12.92)	Published <i>With international search report.</i>
(30) Priority data: MI91A003493 27 December 1991 (27.12.91) IT MTV6563 17 December 1992 (17.12.92) IT	
(71)(72) Applicant and Inventor: MARCHESI, Fabio [IT/IT]; Via Tavani, 18, I-24030 Mozzo (IT).	
(74) Agent: DI GIOVANNI, Italo; Ufficio Brevetti Dott. Ing. Digiovanni Schmiedt, Via Aldrovandi, 7, I-20129 Milano (IT).	
(81) Designated States: AT, AU, BB, BG, BR, CA, CH, CS, DE, DK, ES, FI, GB, HU, JP, KP, KR, LK, LU, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, SN, TD, TG).	

(54) Title: DEVICE FOR DESINFECTING PARTS OF THE HUMAN BODY EXPOSED TO INFECTION BY SEXUAL RELATIONS

(57) Abstract

Device (10) for disinfecting and immunizing areas of the human body exposed to infection, especially caused by sexual intercourse, by germs, bacteria, viruses, especially those causing AIDS exploiting their negative photo-sensitivity, comprising a convex structure (16) that can be inserted into the female genital organ, into the mouth, into the anus, or a concave structure in which the male genital organ can be inserted, and comprising a transmitter (12) of light irradiated towards said organs, the purpose of this being to permit disinfection of the sexual organs before, during and after sexual intercourse.



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	FR	France	MR	Mauritania
AU	Australia	GA	Gabon	MW	Malawi
BB	Barbados	GB	United Kingdom	NL	Netherlands
BE	Belgium	GN	Guinea	NO	Norway
BF	Burkina Faso	GR	Greece	NZ	New Zealand
BG	Bulgaria	HU	Hungary	PL	Poland
BJ	Benin	IE	Ireland	PT	Portugal
BR	Brazil	IT	Italy	RO	Romania
CA	Canada	JP	Japan	RU	Russian Federation
CF	Central African Republic	KP	Democratic People's Republic of Korea	SD	Sudan
CG	Congo	KR	Republic of Korea	SE	Sweden
CH	Switzerland	KZ	Kazakhstan	SK	Slovak Republic
CI	Côte d'Ivoire	LJ	Liechtenstein	SN	Senegal
CM	Cameroon	LK	Sri Lanka	SU	Soviet Union
CS	Czechoslovakia	LU	Luxembourg	TD	Chad
CZ	Czech Republic	MC	Monaco	TG	Togo
DE	Germany	MG	Madagascar	UA	Ukraine
DK	Denmark	ML	Mali	US	United States of America
ES	Spain	MN	Mongolia	VN	Viet Nam

Device for disinfecting parts of the human body exposed to infection by sexual relations

The invention concerns devices for disinfection by physical action.

Methods used for destroying or neutralizing or combating germs, bacteria and viruses are well-known, methods both chemical and physical such as heat, steam, boiling water, and mechanical such as filters and similar means.

- 10 The action of some viruses such as those causing smallpox, poliomyelitis, influenza and hepatitis can be prevented by vaccines, namely suspensions of inert or attenuated bacteria or viruses administered to produce a protective reaction by the human body.
- 15 The difficulties or perhaps the impossibility of securing positive results, even partial ones, if the virus has already taken a hold, are also well-known.

- 2 -

This is especially so in the tragic case of AIDS, the Acquired Immune Deficiency Syndrome, that terrible disease to which certain categories of persons are particularly prone, mainly due to sexual acts, it being impossible, by known methods, to prevent its onset or treat it since all means or vaccines hitherto tried out have proved ineffectual. This disease is rendered even more acute both by its being incurable and because it impedes those acts, both material and spiritual, most closely related to human living such as sex and the expression of love.

10 Prevention of the disease is entrusted solely to control over sexual behaviour and to encouragement in the use of prophylactic means.

According to recent findings, the AIDS virus can produce 15 its tragic effects following contamination of the cells. But penetration inside the cells is all the more probable if the virus is strong and if it can link with antibodies which do not neutralize it, so that the body's immunizing response ends by facilitating entry of the virus into the 20 cells.

It is further known that, following sexual intercourse, any man or woman may retain the infected fluid for several hours, or days, within the vagina or anus. Purpose of the above invention is to combat and overcome 25 said disease by adopting not pharmacological means but others of a physical and mechanical nature based on well-known phenomena such as negative photosensitivity of bacteria and viruses, means that can be suitably associated with sexual intercourse.

30 A known characteristic of viruses, especially those responsible for AIDS, is that they can be easily destroyed

- 3 -

or at least weakened when still outside the cell, and this may be achieved not only by certain temperatures and degrees of humidity but also by radiations, especially light rays, even if exposure is only very brief.

5 Subject of the invention is a device for disinfecting and immunizing parts of the human body exposed to infection by germs, bacteria and photosensitive viruses, especially those causing AIDS, due in particular to sexual intercourse.

Said devices have a rigid, semirigid or flexible structure,

10 convex or concave or with some concave and convex parts.

The convex structure can therefore be fitted inside the concave sexual organs of the human body, especially the female genital organs, mouth, anus, or else be placed in the concave structure of the male genital organ.

15 Within said structure there is a transmitter of radiations, especially of light, towards the outside and therefore towards the walls of the concave human organ, or else towards the inside and therefore towards the convex human organ.

Said transmitter is connected to an independent source of

20 electricity inside the structure such as a battery and similar device, or to an outside source of electricity by means of a cable.

The aim of this is to permit irradiation before, during and after sexual intercourse, of whichever parts of the body

25 have been concerned.

The light may be white, neon or ultraviolet, as required, as the lamp is of the wood type.

Frequency, wavelength, power, intensity and other properties of such radiation are calculated to obtain the best 30 superficial and in-depth treatment of those parts of the body most exposed to infection especially after sexual intercourse.

- 4 -

Preferably the convex structure is cylindrical and includes a transparent part at the front, with a rounded tip, and is of a diameter compatible with penetration inside the cavities of the human body especially the vagina, mouth
5 and anus.

To treat the penis the transmitter may be annular or cylindrical in shape and of a diameter compatible with insertion inside the penis itself.

Advantageously the structure comprises a lens or set of
10 lenses for adequate concentration and direction of rays onto the area requiring the treatment.

The length of time for most effective irradiation in any particular case is set by an easily operated timer.

Radiation may be continuous, intermittent or cyclic, with
15 intervals, while the power, intensity, wavelength, frequency and various properties of the process may be varied according to the part of the body to be treated and to the likelihood of infection.

The structure of the device in one type of execution is
20 compatible with its introduction into the vagina or uterus as is done with well-known mechanical means of contraception such as caps, coils and suchlike, or else the structure may include a projection, expansion and the like whose shape and size is suitable for penetration inside the
25 vagina, the uterus, the mouth or the anus.

Connection to an external source of electricity is made by a thin cable to permit irradiation of said cavities during sexual intercourse.

In another type of execution the structure of the device
30 is cylindrical, being a sheath of very fine rubber, plastic or similar means whose internal dimensions are suitable for

- 5 -

fitting it over the penis like the well-known prophylactic condom.

The ray transmitter is placed close to the tip.

Electric feed is best supplied from outside through a fine
5 cable fixed to the sides of the sheath.

Advantageously the device may be associated to the known cylindrical vibrators to facilitate physical and psychological acceptance by users particularly women, allying the disinfecting and immunizing function to well-known sexual
10 or therapeutical acts. The radiation may be transmitted inside the bodily cavities, especially inside the female genital organs, the mouth or the anus, possibly by means of optic fibres.

The shape of the ray transmitter may be practically punctiform, linear, cylindrical or annular.
15

In one type of execution the device consists of two bodies. One body has a convex structure that can be inserted into the hollow sexual organs of the human body, while the other contains a slot for the first body and also a
20 cavity into which the penis can be inserted.

The sides of said cavity are connected with those of the slot for the first body by means of a system of ray transmission and intensification, such as lenses and other means, emitted by the first body.

25 In this way the first convex body can be used for treating the vagina and the second body with a cavity in it for treating the penis after insertion of said first convex body into the slot made for it in the second body.

In one type of execution the transmitter is supported by
30 an oblong handle and is placed close to said handle's front edge.

- 6 -

An oblong, substantially cylindrical, hollow convex body can, if desired, be associated to said handle; said convex body is transparent, has a rounded tip and can be introduced into the sexual cavities of the human body or else 5 in a cup or hollow cylindrical body of suitable dimensions for receiving the penis.

Means such as lenses and specific optical structures can be placed in the tip of the convex body and in the walls of the concave body for transmission and intensification 10 of the radiations sent out from the transmitter.

It is thus possible to treat, as desired, the concave or convex areas of the human body by associating the convex or concave body to the handle.

Association between the handle and the convex or concave 15 bodies may be made by threading, cut on the front edge of the handle and respectively on the back edge of the oblong body and externally on the bottom of the concave body.

It is advantageous to associate together light and heat rays to make the disinfecting and immunizing effect more 20 powerful.

The advantages of the invention are clear. Though necessarily carried out inside the human body, the sexual act may take place simultaneously with radiations, of light particularly, since, as has been explained, it 25 is possible to irradiate the cavities in which said act proceeds especially with suitable light.

Allowing for the time needed by the viruses to penetrate inside the human body, in the mucous surfaces, capillaries, vessels, internal ducts and especially inside the 30 cells, the treatment may be given before, during and immediately after the sexual act thus killing, neutralizing

- 7 -

or weakening the viruses that may have so penetrated, or even the antibodies that do not neutralize and act as co-factors.

Preliminary disinfection of the sexual organs or, in any 5 case, of the organs used in sexual intercourse, may be of great value in immunizing or at least rendering non-infectious, that part of the human body used in the sexual act by diseased persons or by those who do not know their real state of health or sickness.

10 By associating heat to light rays, especially ultraviolet, the effects of the invented device may be made more powerful, raising the levels of irradiation to the limits that the human body can accept. Even if total neutralization of viruses should involve limited damage to mucous membranes, such damage can be cured within a few days avoiding infection and saving life.

Since at the present time nothing exists except prophylactic means, the nature of which is negative for women's self-respect, abstention and expectation of a vaccine, a 20 void is filled by the subject of this present invention. In conclusion, the invention may make possible safe sexual intercourse even after the onset of AIDS. Characteristics and purposes of the invention will become still clearer from the following examples of its execution 25 illustrated by diagrammatically drawn figures.

Fig. 1 Longitudinal section of a device, according to the invention, of a convex cylindrical structure.

Fig. 2 Longitudinal section of a device similar to that in Fig. 1 associated to a vibrator.

30 Fig. 3 Longitudinal section of the device in Fig. 1 inside a structure with a cavity for disinfecting the penis.

Fig. 4 Side view of a device according to the invention that allows of interchangeability of a structure for disinfecting the vagina with another suitable for disinfecting the penis.

5 Fig. 5 A device according to the invention that can be inserted into the bottom of the vagina.

The cylindrical device 10 comprises a hollow posterior handle 11 and an anterior transparent body 16 that can be connected to the handle 11 by means of the coupling 17.

10 At the tip of said anterior body 16 is a lens 13 and inside it, on the insulating base 15, is a WOOD type light bulb 12. Inside the handle is an electric battery 17. Between the base 15 and the battery 17 is an electronic circuit 14 for regulation operated by a lateral slider 20.

15 The back end of the handle can be closed with the plug 18 by means of the threads 21 and 22.

The bottom of said plug 18 has a metal ring 23 and a central tapered metal spring 24 fixed to it, said spring being connected to a switch 25 with external lever 26.

20 Electric connections, such as 27-29, are situated between the bulb 12 and the battery 17.

When, after sexual intercourse, the body 16 is placed inside the vagina, in the anus or in the mouth, the light given off by the bulb 12 intensified by the lens 13, disinfects the organ destroying the photosensitive viruses that are the cause of AIDS.

If this precaution is taken before sexual intercourse, an adequately disinfected environment is prepared.

25 The device 30 in Fig. 2 comprises a hollow posterior handle 31 with plug 32 and forward transparent body 33 that can be joined to the handle by the coupling 34.

- 9 -

Said handle 31 with plug 32 and said forward body 33 are very similar to the handle 11 and forward body 16 respectively on the device 10 seen in Fig. 1.

Inside the transparent body is a WOOD-type lamp 40 mounted 5 on the base 35.

The battery 36 may be seen inside the handle.

Between said battery 36 and the base 35 an electric vibrator 37 is placed with eccentric mass 38 fixed to the pin 39.

The electronic circuit 41 for adjustment and control by 10 means of the slider 42, is placed between said vibrator and the battery.

Electric connections such as 43, 44 are provided between the bulb 40, the electric vibrator 37 and the battery 36.

Fig. 3 illustrates a device 49 whose structure 50 comprises 15 two parallel and adjacently placed cylindrical cavities 51 and 52 facing in opposite directions.

The diameter of cavity 51 is slightly greater than that of the devices 10 and 30 already described in Figs. 1 and 2.

These devices can therefore be inserted in said cavity 51 20 in the same way as indicated for device number 1.

Dimensions of cavity 52 are adequate for receiving the penis. The wall surfaces 53 and 54 around cavities 51 and 52 and therefore also the intermediate one 55, are continuous and are made of a special optical structure (details not shown 25 for simplicity) by which the radiations given off by lamps 12 or 40 are automatically transferred to the volume inside the chamber created by the cavity 52.

With said device 49, devices like 10 and 30, suited to disinfection of the sexual cavities, can also be used for dis- 30 infecting the penis by inserting it into the cavity of said device 49.

- 10 -

Fig. 4 shows a device 60 similar to devices 10 and 30 already described. Unlike these latter, however, the WOOD-type lamp 62 is entirely inside the handle 61 at the front of which there is a flange 63 with internal thread 64.

5 The anterior transparent body 65 has a raised rim with a thread 67 for screwing onto the handle 61.

The rays emitted by the lamp 62 pass through the wall 68 of the body 65 and are intensified by the lens 69, practically speaking as in devices 10 and 30 described above.

10 Said anterior body 65 is interchangeable with the cup 70, passing through whose base 71 is a hole 72 surrounded by a raised rim 73 with threading 74 corresponding to the threading 67 on the body 65.

The rays from the lamp 62 are transmitted into the cavity 15 75 in said cup 70.

Therefore, by coupling the body 65 to the handle 61, the vagina and other sexual cavities can be disinfected, while by fitting on the cup 70, the penis can be disinfected by inserting it inside said cup.

20 Fig. 5 shows the device 79 used in a vagina 80.

At the end of the vagina, near to the neck 81 into the uterus, the transparent structure is placed with its WOOD-type lamp 84 connected by the electric cable 85 to a source of electricity 86.

25 In this way, during sexual intercourse, the area where this takes place is lit up and irradiated securing the beneficial effects described and preventing infection, especially of the kind that causes AIDS.

- 11 -

Claims

1. Device (10, 30, 49, 60, 79) for disinfecting and immunizing treatment given to areas of the human body exposed to infection by germs, bacteria and viruses of the photo-sensitive kind particularly, and especially of those causing AIDS chiefly through sexual intercourse, characterized in that the device has a rigid or semirigid or flexible structure as the case may be, convex (11, 16) (31, 33), (61, 65, 83) or concave (70) or else a structure (50) with cavities respectively for inserting it inside the concave sexual organs of the human body especially in the femal genital organ, in the mouth and in the anus and for receiving the male genital organ and comprises a transmitter (12; 40, 62, 84) of radiations, especially light rays, towards the outside and therefore towards the walls of the concave human organ or to the inside and therefore towards the male convex organ, independent electric feed being present inside the structure (11, 31, 61) provided by batteries (17, 36) or else external electric feed (86) connected 10 to the transmitter by a fine cable (85) in order to permit irradiation of the sexual parts (80) of the human body, whichever is concerned, before during and after sexual acts.
2. Device as in claim 1, characterized in that the light is white or neon.
- 25 3. Device as in claim 1, characterized in that the light is ultraviolet as the lamp is of the type known as WOOD.
4. Device as in claim 1, characterized in that the frequency, wavelength, power, intensity of radiation and other properties are calculated so as to ensure the best surface and in-depth treatment of 30

- 12 -

those parts of the human body most exposed to infection especially that deriving from sexual intercourse.

5. Device as in claim 1,

characterized in that the transmitter (12, 40) is inserted within a convex transparent structure (16, 33), having, a rounded tip and a diameter such as to permit penetration inside the cavities of the human body, especially the cavities of the vagina, of the mouth and the anus.

6. Device as in claim 1,

10 characterized in that the shape of the transmitter and consequently the structure containing it, is practically annular or cylindrical its diameter being compatible with insertion of the penis inside it.

7. Device as in claim 1,

15 characterized in that it comprises a lens (13, 69) or a set of lenses for adequately concentrating and directing the radiations onto the areas to be treated.

8. Device as in claim 1,

characterized in that it comprises an easily operated timer to establish the time allowed for radiation.

9. Device as in claim 1,

characterized in that irradiation is continuous or intermittent or cyclical, interrupted at intervals and also with adjustable variation of power, intensity, wavelength, frequency, of the various properties, according to which part 25 of the human body is being treated and to the greater or lesser probability of infection.

10. Device as in claim 1,

characterized in that its structure (83, 85) is compatible with insertion into the vagina (80) and into the uterus as is done with well-known mechanical contraceptives

- 13 -

such as caps, coils and the like, or else it is provided with a projection, an expansion and similar extensions of shapes and sizes suitable for insertion into the vagina (80), into the uterus, into the mouth or into the anus

5 it possibly being connected with an external source of electricity (86) by means of a thin cable (85) in order to permit irradiation of said cavities (80) during sexual intercourse.

11. Device as in claim 1,

10 characterized in that its structure is compatible with insertion within it of the penis and compatible with carrying out the sexual act as is done with the well-known prophylactic means called a condom or anti-venereal sheath, said cylindrical structure being therefore preferably in the form
15 of a sheath of thin rubber, plastic or similar means whose internal dimensions correspond to those of the penis, the transmitter of rays being situated close to the tip, the source of electric feed being preferably external and carried in by a thin cable fixed to the sides of the sheath.

20 12. Device as in claim 1,

characterized in that it is associated to the well-known vibrators used for sexual or therapeutic purposes with the aim of promoting physical and psychological acceptance by users especially women, associating the disinfecting and
25 immunizing treatment to known sexual or therapeutic acts.

13. Device as in claim 1,

characterized in that the radiations are transmitted inside the parts of the human body, especially inside the female genital parts, inside the mouth, anus, by means of
30 optic fibres.

14. Device as in claim 1,

characterized in that the form of the transmitter may be

- 14 -

punctiform (84), linear, cylindrical, annular.

15. Device as in claim 1,
characterized in that it consists of two components (50,
10, 30), the structure of the first component (10, 30)
5 being convex suitable for insertion inside the hollow sexual
organs of the human body, the second component (50)
having a slot (51) for the first component (10, 30) and
also a cavity (52) in which the penis can be inserted, the
walls (54) of said cavity (52) being connected with the
10 walls (55) of the slot (51) for the first component (10,
30) by means of a system for transmission and intensification
of the rays, such as lenses and other means, emitted
by the first component (10, 30) so that, for example,
the first convex component (10, 30) can be used for treat-
15 ment of the vagina and the second component (50) with the
cavity (52) for treatment of the penis after insertion of
said first convex component (10, 30) in the slot (51) made
in the second component (50).

16. Device as in claim 1,
20 characterized in that the transmitter (62) is supported
by an oblong handle (61) and is situated close to an anterior
flange (63), it being possible to associate, as desired,
to said handle (61) a convex, oblong, hollow, substantially
cylindrical transparent body (65), with a rounded tip (69)
25 suitable for insertion inside the sexual cavities of the
human body or else a cup (70) or hollow cylindrical body
generally, of dimensions such that the penis can be inserted,
means such as lenses (69) and specific optical structures
being provided in the tip of the convex body and in
30 the walls of the concave body for transmission and intensification
of the radiations emitted by the transmitter (62)

- 15 -

it being thus possible to treat as desired the concave or convex areas of the human body, associating the convex body (65) or the concave body (70) to the handle (61).

17. Device as in claim 16,

5 characterized in that association between the handle (61) and the convex body (65) or concave body (70) is made by means of threading (64) cut on the front flange (63) of of the handle (61), another thread (67) made on the posterior edge (66) of the oblong body (65) and another thread 10 (74) on the outside of the bottom (71) of the concave body (70).

18. Device as in claim 1,

characterized in that light and heat rays are associated together.

15

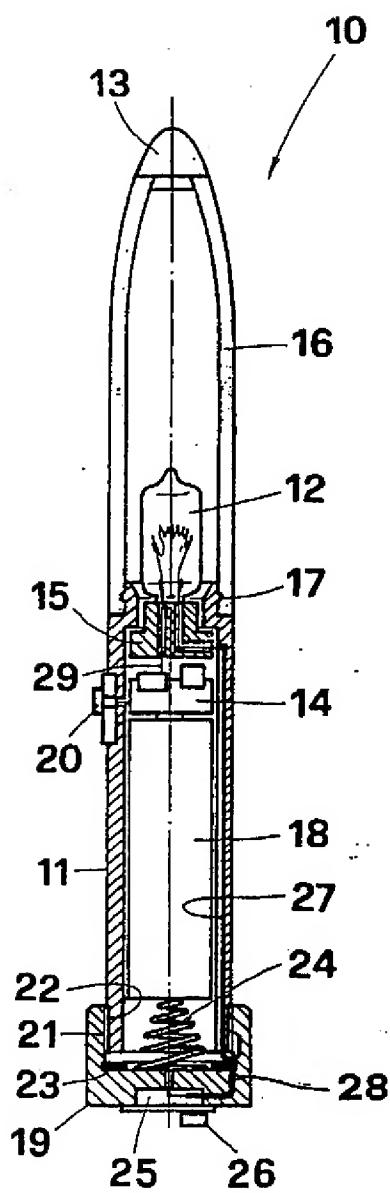


Fig. 1

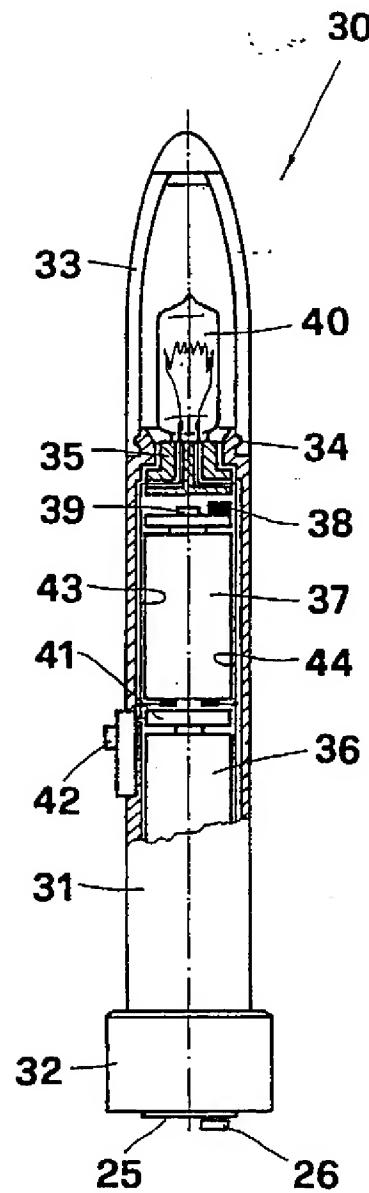


Fig. 2

2/4

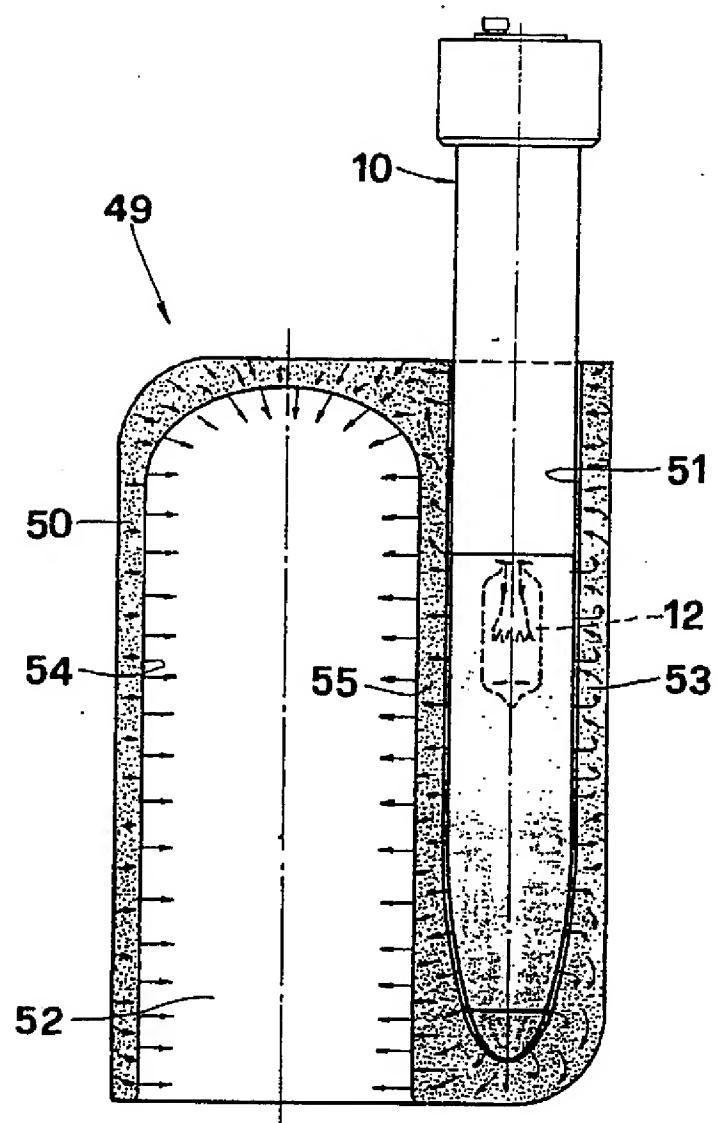


Fig. 3

3/4

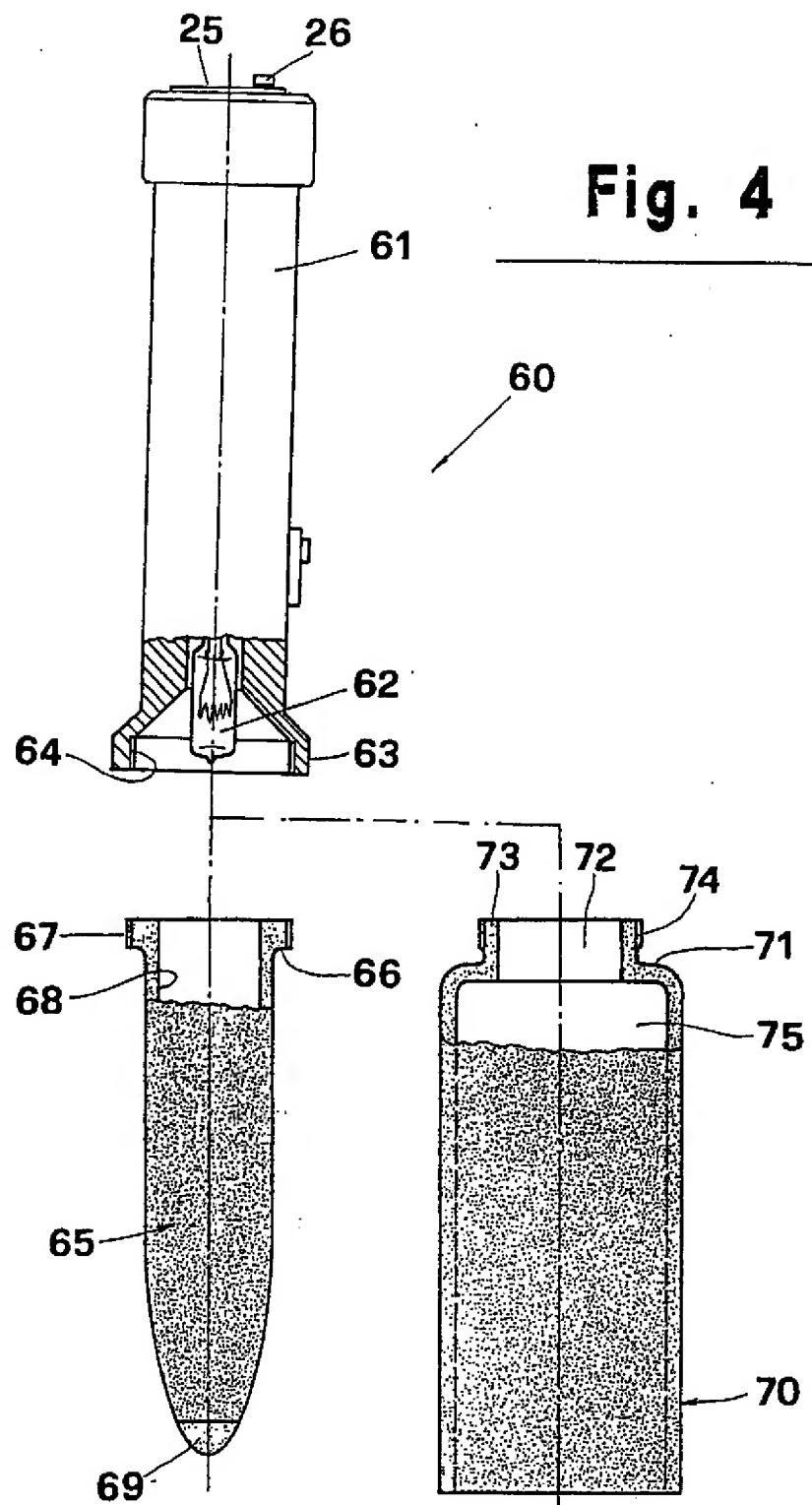


Fig. 4

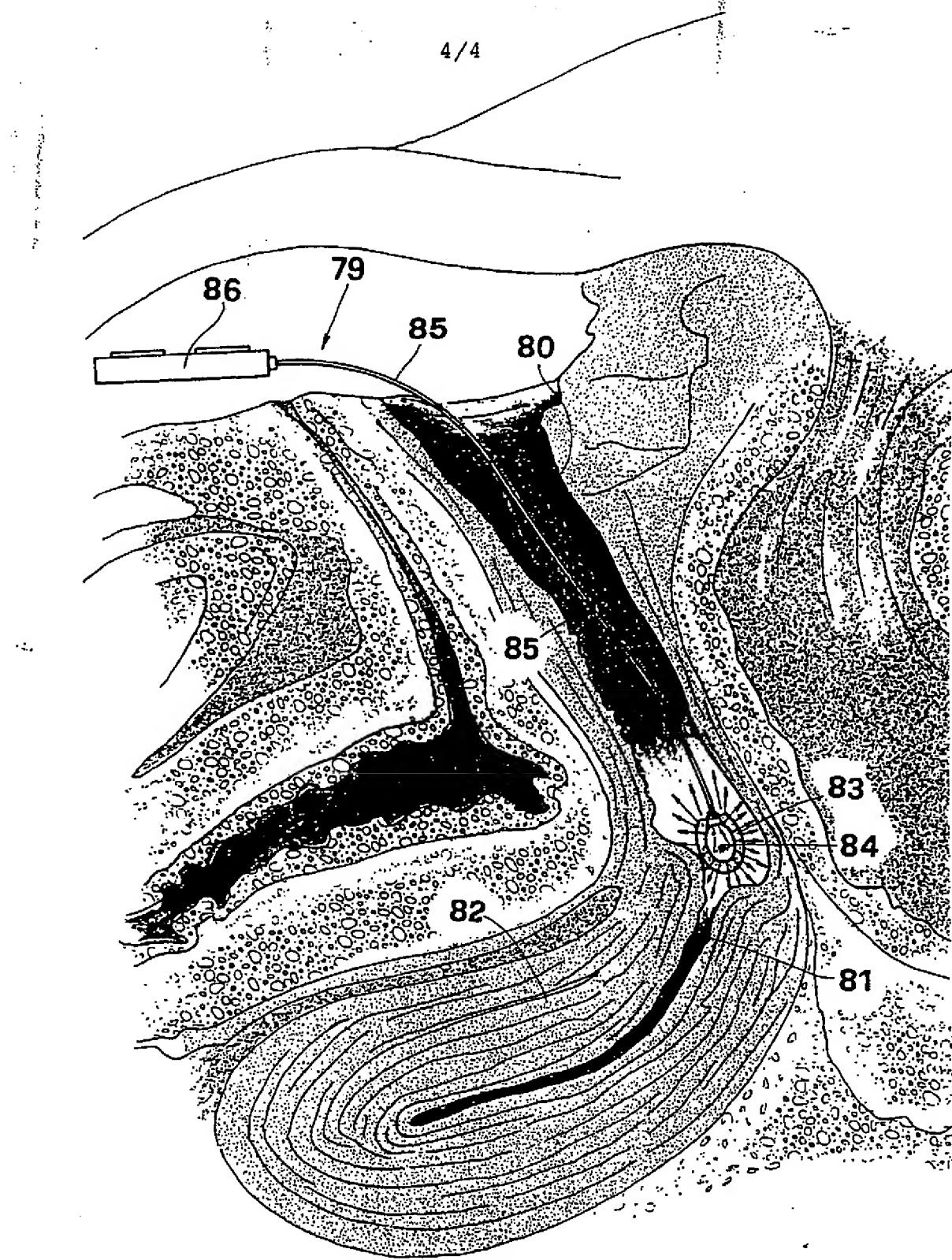


Fig. 5

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/IT 92/00169

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all)⁶

According to International Patent Classification (IPC) or to both National Classification and IPC
 Int.C1. 5 A61N5/06; A61L2/10; A61L2/08

II. FIELDS SEARCHED

Minimum Documentation Searched⁷

Classification System	Classification Symbols
Int.C1. 5	A61N ; A61L

Documentation Searched other than Minimum Documentation
 to the Extent that such Documents are Included in the Fields Searched⁸

III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹

Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	EP,A,0 406 454 (TECLAS) 9 January 1991 see page 4, line 45 - line 46; claims 1,3 ---	1,4,5, 7-9,13
X	GB,A,2 198 955 (KEI MORI) 29 June 1988 see page 9, line 10 - line 18; figure 4 ---	1,2,7,13
X	DE,C,560 978 (C.A. DOS SANTOS) 8 October 1932 see the whole document ---	1,4,5,8, 9,18
X	FR,A,721 923 (ELEKTRISCHE GLUHLAMPENFABRIK) 9 March 1932 see the whole document ---	1,4,5,9 -/-

* Special categories of cited documents :¹⁰

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search

18 MARCH 1993

Date of Mailing of this International Search Report

07.04.93

International Searching Authority

EUROPEAN PATENT OFFICE

Signature of Authorized Officer

PELTRE CHR.

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category*	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
X	EP,A,0 232 511 (MORI K.) 19 August 1987 see column 1, line 54 see column 2, line 35 - line 39; claim 1; figures 3,4 ----	1,2,4,5, 9,13
X	EP,A,0 394 446 (RADIOTEKNICHESKY INSTITUT IMENI AKADEMICA A.L. MINTSA AKADEMII) 31 October 1990 see claim 1; figure 1 -----	1,4,5,9, 13

ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.

IT 9200169
SA 68847

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

18/03/93

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP-A-0406454	09-01-91	CH-A- 676671	28-02-91
GB-A-2198955	29-06-88	JP-B- 3051196 JP-A- 63158070 DE-A- 3735508 FR-A- 2608435 NL-A- 8703106 US-A- 4804240	06-08-91 01-07-88 30-06-88 24-06-88 18-07-88 14-02-89
DE-C-560978		None	
FR-A-721923		None	
EP-A-0232511	19-08-87	JP-B- 3051194 JP-A- 62170263 AU-A- 6357186 US-A- 4782818	06-08-91 27-07-87 30-07-87 08-11-88
EP-A-0394446	31-10-90	WO-A- 9004435	03-05-90